

# Rhodora

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## CONTENTS:

Eragrostis peregrina and its two Allies. <i>Bayard Long</i>	133
A new Polygonum from Massachusetts. <i>M. L. Fernald</i>	140
Field Trips of the New England Botanical Club, 1919	142
Field Meeting of Vermont Clubs. <i>G. P. Burns</i>	143
The Identity of Angelica lucida. <i>M. L. Fernald</i>	144
Another exceptional Specimen of Daucus Carota. <i>E. H. Eames</i>	147
The white-flowered Bird's Eye Primrose. <i>M. L. Fernald</i>	147
Notes from Matinicus. <i>C. A. E. Long</i>	148

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## THE SPECIFIC CHARACTERS OF ERAGROSTIS PEREGRINA AND ITS TWO ALLIES.

BAYARD LONG.

HACKEL based his *Eragrostis pilosa* var. *condensata*<sup>1</sup> upon a weed occurring in the Grand-Ducal Palace Garden at Karlsruhe. When Professor K. M. Wiegand renamed this plant *E. peregrina*<sup>2</sup> in 1917 he had material from eight stations. In a recent article on the occurrence of the species about Philadelphia<sup>3</sup> it was noted as frequent in this region and more than thirty-five stations for it were mentioned. The greater number of these records are supported by copious suites of material, mostly collected during 1917. In the past season a goodly number of additional collections have been made, especially by Mr. Harold W. Pretz in Lehigh County, Pennsylvania. In consequence there have accumulated at Philadelphia some hundreds of specimens from more than fifty stations. Because of this abundant material now at hand—much more than previously has been available in any study of this plant—a favorable opportunity has arisen to amplify or, in some cases, to reconsider the characters advanced by Hackel and the additional ones noted by Professor Wiegand, as well as to weigh their critical comments.

The affinities of this plant, it may be well to recall, lie with *E. Purshii* as well as *E. pilosa*. There has been a failure among many American botanists in rather recent years to separate the two latter species, but a preliminary study several years ago indicated that these

<sup>1</sup> Hackel, Allgem. Bot. Zeitschr. vii. 13 (1901).

<sup>2</sup> Wiegand, RHODORA, xix. 93 (1917).

<sup>3</sup> Long, RHODORA, xx. 173 (1918).



two plants could be separated with a marked degree of success. With the present interest in *E. peregrina*, a comparative study of the three plants was undertaken — not only because of the previous conviction of the distinctness of *E. Purshii* but particularly because of a number of exceptions noted by Professor Wiegand in his discussion of the distinguishing character of *E. peregrina*. Hackel had compared his plant chiefly with *E. pilosa* but he also distinguished it from *E. Purshii*. Professor Wiegand on the other hand, including *E. Purshii* in *E. pilosa*, compared his *E. peregrina* with a much more complex species-group. It was suspected that the breaking down of certain characters through exceptions was alone due to the failure to distinguish *E. Purshii*. With a further study of the group these exceptions were found to clear away and *E. peregrina*, as well as *E. Purshii*, to stand free from *E. pilosa*.

The characters of *Eragrostis peregrina* compared with those of *E. pilosa* and *E. Purshii*, critical comments, and certain observations apparently new may be taken up in the general sequence of a detailed description.

Of the most constant differences, the greatest stress is rightly laid by Professor Wiegand upon the absence of the long hairs on the auricles of the sheath. A slight delimitation of this character, apparently, should be made. The condition would seem to be more accurately described, if the absence of the hairs be noted on, say, the upper sheaths — the lower sheaths and those on short sterile branches are very often supplied with well developed auricular hairs. This possibly somewhat technical observation in no way depreciates the value of this important character brought to light by Professor Wiegand.

The distinguishing character of the solitary branches of the panicle, maintained by Hackel, is to be given critical consideration. That the panicle-branches of *E. peregrina* are solitary and those of *E. pilosa* in 2's or 4's in the strict sense does not seem to be borne out by a series of specimens, but there is here the germ of a very excellent diagnostic character. In the examination of several hundreds of specimens from many different stations it has been noted that the base of the panicle in *E. peregrina* is consistently composed of a single branch, its point of origin well differentiated from the branch next above, while in *E. pilosa* it is characteristically a pair or a whorl of branches. In *E. Purshii* a somewhat intermediate condition seems to

exist — either single or opposite branches at the base of the panicle. Professor Wiegand notes that "The branches of the panicle... are sometimes solitary in smaller forms of *E. pilosa* (including *E. Purshii*)."  
These forms are probably *E. Purshii*, not true *E. pilosa*. But it will be agreed, doubtless, that the value of a character so palpably dependent upon normal growth need not be discounted by casual small forms.

The absence of the hairs in the axils of the panicle-branches appears to be perfectly constant in *E. peregrina* and therefore diagnostic for the species. Hackel notes that they are, however, sometimes absent in *E. pilosa*; the same is to be said of *E. Purshii*; hence this character must be valued accordingly.

Hackel's statement that in *E. peregrina* "the branches of the panicle are spikelet-bearing to the base so that the panicle appears much denser" while in *E. pilosa* they are "branched from the one-third or one-half point upward and loosely provided with spikelets" describes the condition in these two species perhaps sufficiently accurately, but Professor Wiegand's phrasing, in the case of *E. peregrina*, "spikelet-bearing to near the base," is certainly preferable. Professor Wiegand's comment,... "*E. pilosa* (including *E. Purshii*) ... in smaller plants of the latter species the spikelets extend far toward the base of the branches," was apparently induced by his comparison with plants of true *E. Purshii*. This last species rather characteristically has spikelets arising from quite near the bases of the branches. This character technically distinguishes *E. peregrina* from *E. pilosa* but not from *E. Purshii*. Another point: *E. Purshii* as well as *E. pilosa* having open, sparse panicles, obviously the denseness of the panicle in *E. peregrina* is not alone due to the panicle-branches being spikelet-bearing to the bases, as Hackel seems to infer. The point to be noted is that the panicle of *E. peregrina* bears up to five or more times as many spikelets as either of its allies. When a numerical character becomes as tangible as in this case, it assumes as much importance, it is believed, as is commonly accredited the number of florets in a spikelet in this genus.

The spikelets show characters of more or less differentiating value. The shape appears to be rather distinctive. In *E. peregrina* it is characteristically ovate or ovate-oblong; in *E. Purshii*, ovate-lanceolate; in *E. pilosa*, tending to be linear. In the width of spikelet *E. peregrina* is practically indistinguishable from *E. Purshii* but rather



readily separable from *E. pilosa*; the spikelets in the first two are ordinarily about 1.5 mm. wide; in the last, about 1.0 mm. In such closely allied species the length of the spikelet and the number of florets in a spikelet may not be expected to furnish very tangible points of difference. Furthermore considerable variation is found in different colonies of the same species, in different individuals of the same colony and in spikelets of different age upon the same plant.<sup>1</sup> However, it can readily be shown that a tendency to increase of length and number of florets runs from *E. peregrina* through *E. pilosa* to *E. Purshii*. The spikelets in *E. peregrina* are characteristically well under 5. mm. (and rarely if ever over that length); in *E. pilosa*, somewhat tending to exceed 5. mm.; in *E. Purshii*, rather frequently well over 5. mm. A similar ratio of increase occurs in the number of florets: in *E. peregrina* commonly under 10; in *E. pilosa*, occasionally over 10, up to about 12; in *E. Purshii*, frequently over 10, at times as many as 15.

It is to be maintained that the very short pedicels of *E. peregrina* constitute an excellent diagnostic character, liable to very little if any confusion from supposed short pedicels in *E. pilosa*. In dimensional characters of this kind it is commonly no difficult task to pick out individual cases that would seem to show the given measurements to be of little value. But in the present instance it may be confidently asserted that with experience this character will be recognized as of the greatest service. It immediately distinguishes *E. peregrina* from *E. Purshii*, which latter species commonly has quite long pedicels — in fact from several to many times longer.

The character of smooth empty glumes may be reapportioned among the three species. They are characteristically quite smooth in *E. peregrina* but Professor Wiegand further notes that in *E. pilosa* they are usually but not always scabrous on the keel. This latter statement is to be connected with the inclusion of *E. Purshii* in *E.*

<sup>1</sup> The spikelets of all three species are subject to a notable reduction in length and number of florets in the later panicles. This seems to be most marked in *E. peregrina*. When bearing short spikelets of rather few florets *E. peregrina* will appear to almost assume the key-characters commonly used for *E. Frankii*. In fact, in general appearance — size of plant, habit of growth, many-flowered panicle with stiff, spreading branches — it often bears a greater likeness to this species than to either *E. pilosa* or *E. Purshii*. When the ripe grains are protruding from the spreading scales, in plants showing this marked reduction, *E. Frankii* is so strongly simulated that at a distance it is no slight task to distinguish the two with accuracy. Professor T. C. Porter, as shown by his own determinations, consistently referred the plant to *E. Frankii*.

*pilosa*. It appears that *E. pilosa* has essentially smooth empty glumes while a scabrous keel seems to be a very excellent index of *E. Purshii*. Good characters are also to be found in the actual and relative dimensions of the empty glumes. In *E. peregrina* the lower empty glume is very much reduced, measuring only about 0.5 mm. in length; the upper, about 1.0 mm. About the same condition occurs in *E. pilosa* but some variability is present. In *E. Purshii* the lower measures about 1.0 mm. and the upper about 1.5 mm. The minute lower empty glume will constantly differentiate *E. peregrina* (and usually *E. pilosa*) from *E. Purshii*.

That "the florets are . . . somewhat smaller," as Professor Wiegand observes, would appear to belong to the comparison with *E. Purshii*. There appears to be little tangible difference between those of *E. peregrina* and *E. pilosa* but the rather larger florets of *E. Purshii* will be appreciated with a little experience. Dimensionally the former two species may be said to have florets usually under 1.5 mm. in length; the latter, commonly over 1.5 mm.

Professor Wiegand, in commenting upon the statement of Hackel that "The plant is closely related to the *E. Purshii* (*caroliniana*) but is distinguished from it by the absence of conspicuous lateral nerves on the flowering glume," says, "The lateral nerves of the flowering glumes are always inconspicuous but there are occasional specimens of *E. pilosa* in which they are equally indistinct." My own observations indicate that, as in other characters, *E. peregrina* shows itself to be very closely related technically to *E. pilosa*, and in the matter of distinctness of the lateral nerves very little if any differentiation can be drawn between these two species, but *E. Purshii* may be separated from them both, with a fair degree of satisfaction, by its quite conspicuous nerves. Professor Wiegand's observation, one may believe, is due to the abundant material of *E. Purshii* which he had for comparison and the relatively small series of real *E. pilosa*—if the material at Cambridge and New York runs similar to that at Philadelphia.

The use of texture and color of the flowering glumes by some authors as key characters to separate *E. pilosa* and *E. Purshii* induced a comparative examination of these features in the three species. At best, characters of this kind do not seem overly distinctive. In the present case very little satisfaction is obtained in endeavoring to distinguish between "thin" and "firm," and "purplish," whether



"bright" or "dull." It seems practically impossible to differentiate textures and the best that can be said of the coloring is that *E. pilosa* and *E. peregrina* seem to have a greater tendency to be somewhat "purplish" tinged than *E. Purshii*. It seems very doubtful if there is any real value in these points — certainly none to distinguish readily *E. peregrina*.

A distinction, apparently not previously noted, is to be found in the behavior of the paleas on the maturity of the grain. It is well known that in *Eragrostis* the paleas are often persistent after the fall of their lemmas but this point does not seem to have been used very extensively (or possibly found constant) as a diagnostic character. In the course of field study embracing mostly *E. Purshii* and *E. peregrina* it became apparent that in the former the paleas are very persistent and tightly appressed to the rachilla, even after the panicle has become completely dead and broken up. A very characteristic appearance is produced, somewhat suggesting a shriveled or desiccated spikelet. On the other hand it was found that in *E. peregrina* all the scales, including the paleas, immediately fall away with the ripened grain from the rachilla. The denuded, close, short zigzag of the rachilla proves to be a character of considerable value. It is not to be supposed, of course, that *every* palea *always* falls away but the tendency is so very strong that if a mature panicle be pulled through the fingers any paleas still attached will invariably break away at once, showing their natural disarticulation. This process applied to *E. Purshii* rarely if ever disturbs a single palea. It has not been possible to examine satisfactorily the behavior of the paleas in *E. pilosa*, as field experience with this species has been too meager to be conclusive, but it would appear that the paleas are more or less deciduous. In *E. peregrina* and *E. Purshii* this point is definite and distinctive but in *E. pilosa* herbarium material suggests it to be a variable character.

Of differences almost microscopic, but apparently distinctive in a way, the size of the grain may be noted. That of *E. peregrina* is the smallest, measuring about 0.5–0.6 mm. in length. That of *E. pilosa* and of *E. Purshii* averages about 0.7–0.8 mm. These measurements are too minute and too close to be of much practical service — particularly when some variation must be allowed for spikelets of different ages.

It might seem from a critical examination of the foregoing comments



that, while *E. Purshii* has been separated from the group with some satisfaction, *E. peregrina* has been almost comprehended in *E. pilosa*. And, truth to tell, its relationship, on a majority of points, does lie more nearly with *E. pilosa*, but in the possession of several constant and unique characters it amply proves itself specifically distinct from both its allies.

The characters of *E. peregrina* may be briefly summarized. The most distinctive, separating the plant from both *E. pilosa* and *E. Purshii*, would appear to be: absence of auricular hairs on the upper sheaths; panicle densely flowered, bearing a great number of spikelets; spikelets ovate or ovate-oblong; pedicels of the spikelets very short. Of scarcely less value are those characters which are constant for *E. peregrina* but shared by one or the other of its allies — or both, in the single case of absence of hairs in the axils of the panicle branches. Among these may be noted: base of the panicle consisting of a single branch; absence of hairs in the axils of the panicle-branches; branches of the panicle spikelet-bearing to near the base; spikelets about 1.5 mm. wide; empty glumes with smooth keels, the lower one about 0.5 mm. long; florets small, usually under 1.5 mm. in length; lateral nerves of the flowering glumes inconspicuous; paleas deciduous.

Similarly, the most salient characters separating *E. pilosa* from its two allies seem to be: panicle-branches branched from the one-third to the one-half point upward; spikelets tending to be linear, about 1.0 mm. wide. Characters constant for the species but shared by *E. peregrina* or *E. Purshii*: auricles of the sheaths bearing long hairs; base of the panicle a pair or a whorl of branches; panicle sparsely flowered; pedicels of the spikelets long; empty glumes with smooth keels, the lower one about 0.5 mm. long; florets small, usually under 1.5 mm. in length; lateral nerves of the flowering glumes inconspicuous. *apparently in young condition*

For *E. Purshii* the two categories of characters may be noted in like manner. First: spikelets ovate-lanceolate; empty glumes with scabrous keels, the lower one about 1.0 mm. long; florets larger, usually over 1.5 mm. in length; lateral nerves of the flowering glumes conspicuous; paleas persistent. Second: auricles of the sheaths bearing long hairs; branches of the panicle spikelet-bearing to near the base; panicle sparsely flowered; pedicels of the spikelets long; spikelets about 1.5 mm. wide.

It is not to be thought that in the distinguishing of *E. pilosa*, *E.*

*Purshii* and *E. peregrina* the difficulties surrounding this group have been removed. It is believed that they are in part ameliorated, but while *E. peregrina* and *E. Purshii* appear to be very definite species units, each quite constant in its characters, the same cannot so certainly be said of *E. pilosa*. In fact the amount of variation seen in the material grouped together under *E. pilosa* is so much more pronounced than in the two allied species that it is strongly suspected this is by no means a homogeneous series. *E. Purshii* has proved to be so satisfactorily separable, despite critical opinion to the contrary, that one is naturally inclined to a belief that this is a group still deserving careful study.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

## A NEW POLYGONUM FROM SOUTHEASTERN MASSACHUSETTS.

M. L. FERNALD.

IN 1913, while exploring the ponds of Plymouth, Massachusetts, with Messrs. Francis W. Hunnewell and Bayard Long, the writer was much interested in a strictly indigenous annual *Polygonum* of the sandy pond-margins which was obviously related to the naturalized *P. Persicaria* L. but which had more slender and more richly colored spikes. Although it was obvious that this indigenous plant of southeastern Massachusetts could not be exactly matched by *P. Persicaria*, no serious attempt was made to differentiate the two until further observations could be made. It is noteworthy, however, that in 1915, Mr. C. A. Weatherby, collecting the plant of "sandy strand of a pond" on Cape Cod, should have labeled his material "*Polygonum Persicaria* L.?" In 1918 the real opportunity to watch the plant came when the writer spent the summer on Cape Cod with side-trips into Plymouth. In this exploration he was accompanied most of the time by Mr. Long and the native *Polygonum* was found to be universally distributed on the Cape, and everywhere a plant strictly of pond-margins. The ubiquitous weed, *P. Persicaria*, with its duller pink spikes, was naturally abundant near houses and about the farms, and the indigenous plant held its own peculiar differences



with constancy. Detailed study in the herbarium brings out other points which will be discussed below and which justify the description of the indigenous plant as

**POLYGONUM puritanorum**, n. sp., annuum; caule gracile decumbente adscendente vel erecto 1-6 dm. longo deinde ramosissimo ramis glabris vel plus minusve strigosis; ochreis laxe cylindricis strigosis ciliatis; foliis rhomboideo-lanceolatis utrinque acuminate acutis vel subacutis breviter petiolatis vel subsessilibus plerumque immaculatis subtus plus minusve strigosis primariis 3-10 cm. longis 0.7-1.6 cm. latis; pedunculis erectis glabris vel strigosis longioribus 1-5 cm. longis; spicis densissimis cylindricis primariis 1-3.5 cm. longis 4-6.5 mm. crassis; ochreolis brunnescentibus ciliatis; perianthiis roseis vel purpureis 1.8-2 deinde 2.4-2.6 mm. longis maturitate laevibus vel obsolete nervosis; pedicellis inclusis vel paullo exsertis; staminibus 5-6; achaeniis ovato-orbicularibus biconvexis vel trigonis atris lucidis 2 mm. longis 1.4 mm. latis plerumque inclusis.

Annual: stem slender, decumbent, ascending or erect, 1-6 dm. long, finally much branched; branches glabrous or more or less strigose; ochreae loosely cylindric, strigose, ciliate: leaves rhombic-lanceolate, acuminate at base and apex, acute or subacute, short-petioled or subsessile, usually unspotted, more or less strigose beneath; the primary ones 3-10 cm. long, 0.7-1.6 cm. broad: peduncles erect, glabrous or strigose; the longer 1-5 cm. long: spikes very dense, cylindric; the primary 1-3.5 cm. long, 4-6.5 mm. thick: ochreolae brownish, ciliate: perianths rose-pink or purple, 1.8-2, becoming 2.4-2.6 mm. long, in maturity smooth or only obsoletely nerved: pedicels included or a little exserted: stamens 5 or 6: achenes ovate-orbicular, biconvex or trigonous, black, lustrous, 2 mm. long, 1.4 mm. broad, mostly included.—Plymouth and Barnstable Cos., MASSACHUSETTS: sandy shore of Clear Pond, Plymouth, August 30, 1913, *Fernald, Hunnewell & Long*, no. 9,402; damp sandy beach of Boot Pond, Plymouth, September 6, 1913, *Fernald, Hunnewell & Long*, no. 9,400; damp sandy beach of Great South Pond, Plymouth, September 6, 1913, *Fernald, Hunnewell & Long*, no. 9,401; gravelly and sandy beach, Little Sandy Pond, Plymouth, August 7 & 8, 1918, *Fernald & Clark*, no. 16,755; wet sandy or gravelly lower beach, Half-way Pond, Barnstable, September 4, 1918, *Fernald & Long*, no. 16,759; Yarmouth, September 10, 1907, *E. W. Sinnott*; Scargo Pond, Dennis, August 22, 1907, *E. W. Sinnott*; sandy strand of a pond, Dennis, October 1, 1915, *C. A. Weatherby*; sandy beach, Buck Pond, Harwich, July 8, 1918, *Fernald*, no. 16,752; sandy and gravelly beach, Hawk's Nest Pond, Harwich, July 28, 1918, *Fernald*, no. 16,754; bare sandy beach, east end of Long Pond, Harwich, August 14, 1918, *Fernald & Long*, no. 16,756 (TYPE in Gray Herb.); sandy beach, Seymour Pond, Harwich, September 19, 1918, *Fernald & Weatherby*, no. 16,762;

wet sandy shore of Sheep Pond, Brewster, July 4, 1911, *F. S. Collins*, no. 1,184, July 11, 1918, *Fernald*, no. 16,753; sandy beach of Cliff Pond, Brewster, August 27, 1918, *Fernald & Long*, no. 16,757; wet sandy beach of Long Pond (east of Cliff Pond), Brewster, August 27, 1918, *Fernald & Long*, no. 16,758; wet sandy lower beach of second pond north of No Bottom Pond, Brewster, September 7, 1918, *Fernald & Long*, no. 16,760; lower damp sandy beach of Griffith's Pond, Brewster, September 12, 1918, *Fernald*, no. 16,761; sandy shore of pond, Eastham, August 8, 1907, *F. S. Collins*, no. 425.

Related on the one hand to *P. Persicaria* L., on the other to *P. minus* Hudson. *P. Persicaria* has thicker spikes, the mature primary ones 7-11 mm. thick; larger flowers and achenes, the achenes 2.5-3 mm. long, and often slightly exserted at maturity; and in the mature perianth the lower half of the segments is usually reticulated or strongly nerved. Besides these more constant characters there are others less pronounced: when well developed *P. Persicaria* is a much coarser plant and the primary leaves may become 2-4 cm. wide; in *P. Persicaria*, also, the pedicels are inclined to be more exserted, though this character is not a reliable one.

*P. puritanorum* in its smooth small perianth and small achene is nearer to *P. minus* than to *P. Persicaria*. *P. minus*, however, has decidedly less rhombic-lanceolate leaves, its primary leaves being lanceolate or linear-lanceolate to narrowly oblong; the spikes of *P. minus* are extremely slender and loosely flowered, much as in *P. Hydropiper*; and the achenes are ovate rather than ovate-orbicular.

GRAY HERBARIUM.



FIELD TRIPS OF THE NEW ENGLAND BOTANICAL CLUB,  
1919.

THE Berkshire field trip with a center at Pittsfield from May 29th to 31st was attended by nine men, who during the two days of active field work explored typical sections of nine townships. As a result the Club Herbarium will be enriched by many hundreds of sheets representing nearly 500 species, many of them heretofore known from only one or two stations in the state (for instance, *Salix serissima* conspicuously in flower in late May and collected in nearly all the towns visited) while at least eight plants new to the state were collected.

It is too soon to report in detail upon these collections but the result of the trip is so gratifying that the Committee feels justified in urging a second field trip this year. It is consequently planned to spend the week-end including Labor Day, from Saturday, August 30th, to Monday, September 1st, exploring the ponds and bogs of western Rhode Island and adjacent eastern Connecticut. This region is as little known as any section of southern New England, largely because it is not readily accessible by railroad, and it is earnestly hoped that members who can provide automobiles for this exploration will feel ready to do so. Only a few of the ponds of this border line between Rhode Island and Connecticut have yet been touched by botanists but these have brought to light so many isolated, southern coastal-plain types that a concerted effort to explore many of them should yield most interesting results. Wallum Pond, at the northeastern corner of Rhode Island and in adjacent Worcester County, Massachusetts, is the only station in southern New England for *Sclerolepis uniflora*. Slightly to the south, Long Pond in Thompson, Connecticut, is the pond so invitingly recommended by Mr. Weatherby in the April number of RHODORA, where in a partial survey he and Mrs. Weatherby found many species new to the county and *Aster nemoralis* and *Eleocharis interstincta* new to the state. Beach Pond in Voluntown, Connecticut, and Exeter, Rhode Island, is the only station in New England for the rare southern *Eleocharis Torreyana*; and Grassy Pond in Hopkinton apparently received its name from the great profusion there of *Panicum longifolium*, one of the rarest grasses of southern New England. These are only a few of the ponds in this boundary tract but they have proved so productive that the Committee feels certain that a concerted exploration by automobile of this area of western Rhode Island and eastern Connecticut will yield of large results.

All members who wish further notice of the plan, including the details as to the meeting place, should notify Mr. R. C. Bean, 48 Emerson Street, Wakefield, Mass.

M. L. FERNALD, <i>Chairman</i>	} <i>Committee on</i> <i>Field Excursions.</i>
R. C. BEAN	
C. H. KNOWLTON	

THE ANNUAL FIELD MEETING OF THE VERMONT BOTANICAL AND BIRD CLUBS will be held at No. Hero, Aug. 5 and 6, 1919. Headquarters will be at the Irving House, No. Hero, where the members of the Clubs will assemble the evening of the 4th. If the attendance is beyond the capacity of the House, automobiles will be in waiting to take members to adjacent hotels. Meals at Irving House 50 to 60 cents. Members coming by train can reach No. Hero by Rutland R. R. from Burlington or Rouses Pt. There is no boat service as in former years. As the usual winter meeting was omitted this year, it is hoped that the members will make a special effort to get together this summer. The region is especially rich in shore and water plants and trips will be made to "The Gut," Pelot's Bay, and other points of botanical interest.—GEO. P. BURNS, Sec.

## THE IDENTITY OF ANGELICA LUCIDA.

M. L. FERNALD.

IN 1635, in his remarkable History of Canadian Plants, Cornut described and illustrated by a beautiful plate *Angelica lucida*<sup>1</sup> from Canada. The plant was soon cultivated in various gardens and was described or cited in numerous works of the 18th century, Morrison's *History*, *Hortus Cliffortianus*, etc., and eventually was taken up by Linnaeus in the *Species Plantarum* (1753) as a valid species, under Cornut's original name. Under this name the species was accepted by post-Linnean authors, Crantz, Jacquin, Aiton, Sprengel, Torrey, DeCandolle, Hooker, Beck, Eaton & Wright and others until in 1848, in the 2d edition of Beck's *Botany of the United States*, it made its last formal appearance as an American plant. Prior to that, however, in 1840, Torrey & Gray had cast upon it a doubt, as a result of which *Angelica lucida* was omitted from most subsequent treatments of the American flora. After citing the authentic material preserved in the Vaillant herbarium and giving a very detailed description, Torrey & Gray said: "This plant has been common in the gardens of Europe for 200 years, and appears to have been introduced by Cornuti, on whose authority alone it stands as a North American species. It is a genuine *Angelica*, according to authentic specimens which we examined in the herbarium of the *Hortus Cliffortianus*, and that of Vaillant. The segments are ovate, about an inch long,

<sup>1</sup> Cornut, *Canadensium Plantarum Historia*, 196, 197 (1635).



sessile, unequally serrate, and mostly decurrent or confluent at the base. The rays of the umbel are unusually thick; the involucels of about 8 lanceolate-spatulate leaflets. Fruit (immature) ovate: dorsal ribs slightly winged; the lateral ones dilated into a distinct wing. Vittae very large and filled with a pungent oil. Commissure with 2 vittae.”<sup>1</sup> In his original manuscript note upon which the above statement was based Dr. Gray had also said of *A. lucida* “Differs enough from anything I know, unless it can possibly be *A. atropurpurea* — which, by comparison, it certainly is not!”<sup>2</sup>

Subsequently, in his *Bibliographical Index*, Watson, although including *Angelica lucida* as a valid species, said “A very obscure species; from Canada,”<sup>3</sup> and in 1888 Coulter & Rose, taking their cue from Torrey & Gray, wrote: “*A. LUCIDA* L. is referred to Canada by Cornuti, upon whose authority alone it stands as a North American species. It has long been cultivated in Europe, but its existence as a member of our flora is so very improbable that we do not include it”;<sup>4</sup> and, as for the treatment in their later *Monograph of the North American Umbelliferae*,<sup>5</sup> the Canadian *Angelica lucida* L. might as well have been published as coming from Europe for it is not even casually mentioned.

That indigenous American material of *Angelica lucida* was not recognized by Torrey & Gray in 1840 was natural enough, for they had only one poor fragment or, as they described it, “fruit and flowers only” from an island near Beverly, Massachusetts, and that specimen, so unlike the plate of Cornut, they placed in the newly published *Archangelica peregrina* Nutt. from the coast of Oregon. Under that name or *Archangelica Gmelini* DC. or *Coelopleurum Gmelini* (DC.) Ledeb. the plant of northeastern America was known until in 1900 Coulter & Rose, distinguishing it from the western species, renamed it *Coelopleurum actaeifolium* (Michx.) Coult. & Rose,<sup>6</sup> based upon *Ligusticum actaeifolium* Michx. from Canada.

Subsequently to the publication of the statement by Torrey & Gray, however, Dr. Gray had for a time surmised that the seashore *Angelica* of northeastern America, now passing as *Coelopleurum*

<sup>1</sup> Torr. & Gray, Fl. N. A. i. 621 (1840).

<sup>2</sup> Gray, Mss. on Herb. Mus. Paris.

<sup>3</sup> Wats. Bibl. Ind. 412 (1878).

<sup>4</sup> Coult. & Rose, Rev. N. A. Umbell. 42 (1888).

<sup>5</sup> Coult. & Rose, Contrib. U. S. Nat. Herb. vii. no. 1 (1900).

<sup>6</sup> Coult. & Rose, l. c. 142 (1900).

*actaeifolium*, was *Angelica lucida*; and in the 2d edition of the Manual, we find at the end of the account of *Archangelica peregrina* the note: "Perhaps it is the *Angelica lucida* L." <sup>1</sup> In the 3d edition this note was dropped and in its stead appeared: "It is A[rchangelica] Gmelini, of N. W. America," <sup>2</sup> and in the 5th edition (1867) the plant was formally taken up as *Archangelica Gmelini* DC., while in Watson & Coulter's revision (ed. 6) it became *Coelopleurum Gmelini* Ledeb.

That in 1856 Dr. Gray was correct in his surmise that the *Coelopleurum* of northeastern America is *Angelica lucida* L. cannot be doubted for a moment by any one who has become familiar with the plant in the field. Although in rich woods or in fertile seashore-thickets the plant may exceed 1 m. in height, thus greatly exceeding the prescription, "*Angelicae lucidae vix cubitum implet caulis*" of Cornut, in dry thickets and on rocky or gravelly, bushy slopes (the "*Inter siluarum apria*" of Cornut) the mature plant is only 2.5-4 dm. high and the Cornut plate is beautifully matched by such sheets as *Sornborger*, no. 50, from Hopedale, Labrador, *Fernald & Wiegand*, no. 3,776, from Blane Sablon, Labrador, *Fernald & Wiegand*, no. 3,775, from Ingornachoix Bay, Newfoundland, *Bro. Victorin*, no. 76, from Notre-Dame de Portage, Quebec; all distributed either as *Coelopleurum Gmelini* or *C. actaeifolium*. There is, then, no question that Cornut's *Angelica lucida*, published in 1635 from Canada, actually was of Canadian origin and that he illustrated a beautifully characteristic small specimen of the species which has recently passed as *Coelopleurum actaeifolium* (Michx.) Coult. & Rose. It is gratifying to clear the obscurity which has so long invested this species and to reinstate a plant taken up by Linnaeus in the *Species Plantarum*. The plant should hereafter be called

**COELOPLEURUM lucidum** (L.), n. comb. *Angelica lucida* L. Sp. Pl. i. 251 (1753). *Ligusticum actaeifolium* Michx. Fl. Bor.-Am. i. 166 (1803). *Imperatoria lucida* L. Spreng. Plant. Umbell. Prodr. 17 (1813). *Angelica Archangelica* Schrank. Pl. Labrad. 13 (1818), not L. *Archangelica peregrina* Nutt. in Torr. & Gray, Fl. N. A. i. 622 (1840) as to Massachusetts plant. *Arch. Gmelini* Gray, Man. ed. 5, 193 (1867), not DC. *C. Gmelini* Coult. & Rose, Rev. N. A. Umbell. 90 (1888) as to plant of eastern America, not DC. Ledeb. *C. actaeifolium* (Michx.) Coult. & Rose, Contrib. U. S. Nat. Herb. vii. 142 (1900).—Thickets, borders of woods, rocky or gravelly

<sup>1</sup> Gray, Man. ed. 2, 154 (1856).

<sup>2</sup> Gray, Man. ed. 3, 154 (1862).



shores, sand dunes, etc., along the coast, Greenland to Narragansett Bay, Rhode Island.

In typical *Coelopleurum lucidum* the involucels are spatulate-lanceolate or linear and entire, rarely exceeding the pedicels. On the coast of New England, however, occurs a form in which all or nearly all the involucels are converted into large 3-lobed or 3-parted serrate leaves which conspicuously exceed the umbellules. This may be called

C. LUCIDUM, forma **frondosum**, n. f., involucelli bracteolis foliaceis trilobatis vel tripartitis serratis.—MAINE: Cape Porpoise, Kennebunkport, July 2, 1901, *Kate Furbish* (TYPE in Gray Herb.); Wells, 1898, *Kate Furbish*. MASSACHUSETTS: Beverly Bay, August, 1847, *Chas. Pickering*; Swampscott, August 5, 1886, *C. W. Swan*.

GRAY HERBARIUM.

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ANOTHER EXCEPTIONAL SPECIMEN OF *DAUCUS CAROTA*.—The recent notes in RHODORA, xxi. 70 (1919), by Dr. Robinson concerning a dark-flowered *Daucus Carota* L. remind the writer of a completely colored specimen collected at Bridgeport, Conn., 11 Sept., 1918, by Franklin A. Russell and now deposited in Gray Herbarium.

In this plant the petals throughout all the umbels were wholly very dark purple, similar to those so commonly observed in the central floret. The plant bore several similar compound umbels and was normal in all respects except color of petals.

The "pale-roseate" color-phase seems to be near the other extreme. Between the two are certain intermediates in which the marginal portion of some or even all petals is dark purple, sometimes rather sharply defined or usually gradually diffused toward a central roseate tinge or to entire extinction. Such specimens sometimes display entire petals of the darker color, very rarely, it is true to the extent of any considerable part of one or many umbels.

These observations cover a period of years and have been limited by the general infrequency of such abnormalities although not looked upon as very remarkable.

In relation to the dark coloring of the flowers it may be worthy of mention that the foliage of this species, as in numerous others of the family, is quite commonly shaded or suffused in the same way but, so far as the writer has observed, never in a definite relation to

similar color in the flowers. The fertility and general vigor of all seems to be about normal or even exceptionally robust in isolated cases.—EDWIN H. EAMES, Bridgeport, Connecticut.

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THE WHITE-FLOWERED BIRD'S EYE PRIMROSE.—*Primula mistassinica* Michx. ordinarily has lilac or flesh-colored flowers, but occasionally white corollas are found. In Newfoundland, however, the white-flowered form is abundant, often the only color seen. The plant is so strongly contrasted with the typical form of the species that it should have formal designation and may be called

PRIMULA MISTASSINICA Michx., forma **leucantha**, n. f., corolla lactea.

Corolla milk-white.—TYPE from NEWFOUNDLAND: borders of ponds on the limestone tableland, alt. 200–300 m., Table Mt., Port à Port Bay, July 16 and 17, 1914, *Fernald & St. John*, no. 10,861.—M. L. FERNALD, Gray Herbarium.

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NOTES FROM MATINICUS.—In the summer of 1918 the writer noticed five or six plants of *Amsinckia* growing in and near an abandoned chicken-run. A specimen was sent to Prof. M. L. Fernald for identification and he reports it to be *Amsinckia Douglasiana* A.DC., a native of California, which is there abundant but which has never before been reported from the east. It would appear that having decided to come east, it made up its mind to come as far as possible, as Matinicus is twenty miles off the Maine coast. It remains to be seen whether it will become established or is just a casual.

Another interesting fact concerning this island is that it is a hitherto unpublished station for *Typha angustifolia* L. There is one large marsh which is occupied in about equal parts by *T. angustifolia* and *T. latifolia*. Although unpublished, this station has been known to me for a number of years. Previously its easternmost known habitat was near the lower Kennebec. A specimen from Matinicus has been verified by Professor Fernald, and deposited in the herbarium of the New England Botanical Club.—C. A. E. LONG, Matinicus, Maine.





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